

FIG. 1

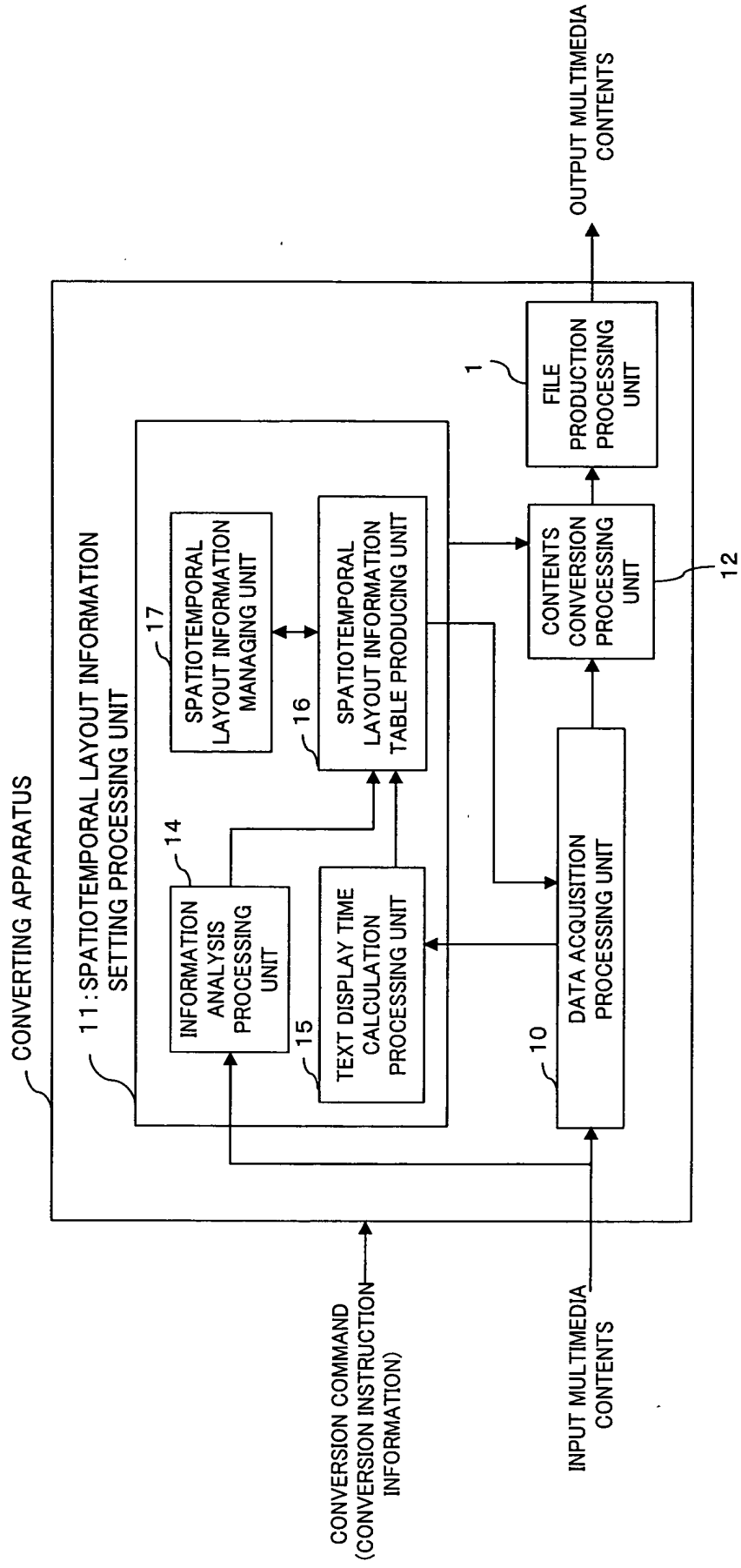


FIG. 2

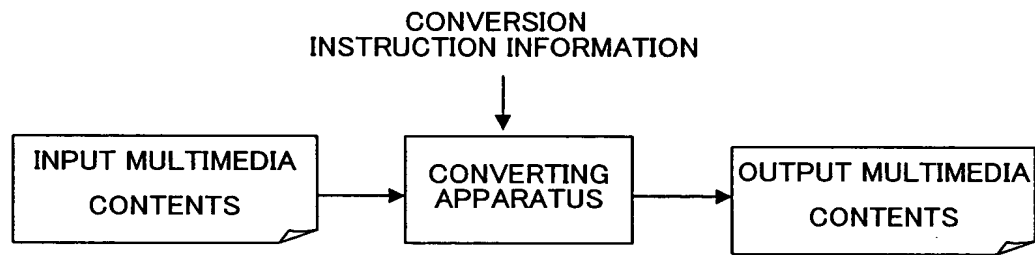


FIG. 3(A)

<<MULTIMEDIA CONTENTS BEFORE CONVERSION>>				
	←T1→	←T2→	←T3→	←T4→
Video#1	Vseg(11)	Vseg(12)		
Video#m			Vseg(m1)	
Audio#1	Aseg(11)			
Audio#n		Aseg(n1)		
Text#1	Tseg(11)		Tseg(12)	
Text#k		Tseg(k1)		Tseg(k2)
OTHERMEDIA				

FIG. 3(B)

<<SELECTED MEDIA CONSTITUTING MULTIMEDIA CONTENTS AFTER CONVERSION>>			
	←T1'→	←T3'→	
Video	Vseg(11)'	Vseg(m1)'	
Text	Tseg(11)	Tseg(12)	Tseg(k2)
	←T1→	←T3→	←T4→

FIG. 3(C)

<<ASYNCHRONOUS CONVERTING METHOD>>				
[METHOD 1-1] [METHOD 1-2] [METHOD 1-3]				
	←T1'→	←T3'→	REPEAT... FREEZE	
Video	Vseg(11)'	Vseg(m1)'		
Text	Tseg(11)	Tseg(12)	Tseg(k2)	BLANK
	←T1'→	←T3'→	←T4'→	

FIG. 3(D)

<<SYNCHRONOUS CONVERTING METHOD>>				
[METHOD 2]				
	←T1'→		←T3'→	
Video	Vseg(11)'	FREEZE	Vseg(m1)'	FREEZE
Text	Tseg(11)		Tseg(12)	Tseg(k2)
	←T1''→		←T3'''→	←T4''→

FIG. 4

```

<smil>
<head>
</head>
<body>
  <seq>
    <par>
      <video id="vseg1" src="v1.mpg" clip-begin="10s" clip-end="20s"/>
      <audio id="aseg1" src="a1.mpg" clip-begin="40s" clip-end="50s"/>
      <text id="tseg1" dur="10s" src="tx1.html"/>
    </par>
    <par>
      <seq>
        <par>
          <video id="vseg2" src="v2.mpg" clip-begin="0s" clip-end="10s"/>
          <text id="tseg2" dur="10s" src="tx2.html"/>
        </par>
        <par>
          <video id="vseg3" src="v3.mpg" clip-begin="20s" clip-end="40s"/>
          <seq>
            <text id="tseg3" dur="10s" src="tx3.html"/>
            <text id="tseg4" dur="10s" src="tx4.html"/>
          </seq>
        </par>
      </seq>
      <audio id="aseg2" src="a2.mpg" clip-begin="10s" clip-end="40s"/>
    </par>
  </seq>
</body>
</smil>

```

Diagram illustrating the structure of an SMIL document (FIG. 4). The document is enclosed in `<smil>` and `</smil>` tags. It contains a `<head>` section and a `<body>` section. The `<body>` section contains a `<seq>` element, which is a sequence of parallel (`<par>`) and sequential (`<seq>`) elements. The diagram highlights four specific elements or groups of elements:

- ①: A parallel group containing a video element (`<video id="vseg1" src="v1.mpg" clip-begin="10s" clip-end="20s"/>`), an audio element (`<audio id="aseg1" src="a1.mpg" clip-begin="40s" clip-end="50s"/>`), and a text element (`<text id="tseg1" dur="10s" src="tx1.html"/>`).
- ②: A sequential group containing a video element (`<video id="vseg2" src="v2.mpg" clip-begin="0s" clip-end="10s"/>`) and a text element (`<text id="tseg2" dur="10s" src="tx2.html"/>`).
- ③: A sequential group containing a video element (`<video id="vseg3" src="v3.mpg" clip-begin="20s" clip-end="40s"/>`) and another sequential group containing two text elements (`<text id="tseg3" dur="10s" src="tx3.html"/>` and `<text id="tseg4" dur="10s" src="tx4.html"/>`).
- ④: An audio element (`<audio id="aseg2" src="a2.mpg" clip-begin="10s" clip-end="40s"/>`).

FIG. 5 (A)

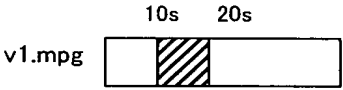


FIG. 5 (B)

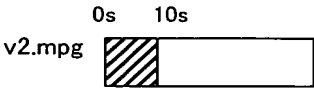


FIG. 5 (C)

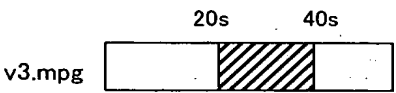


FIG. 5 (D)

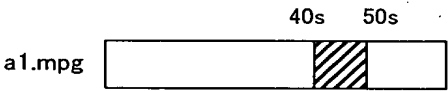


FIG. 5 (E)

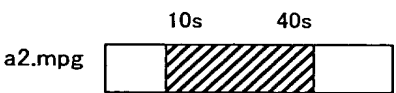


FIG. 5 (F)

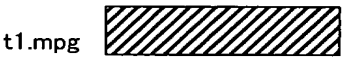


FIG. 5 (G)



FIG. 5 (H)



FIG. 5 (I)

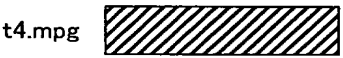


FIG. 6

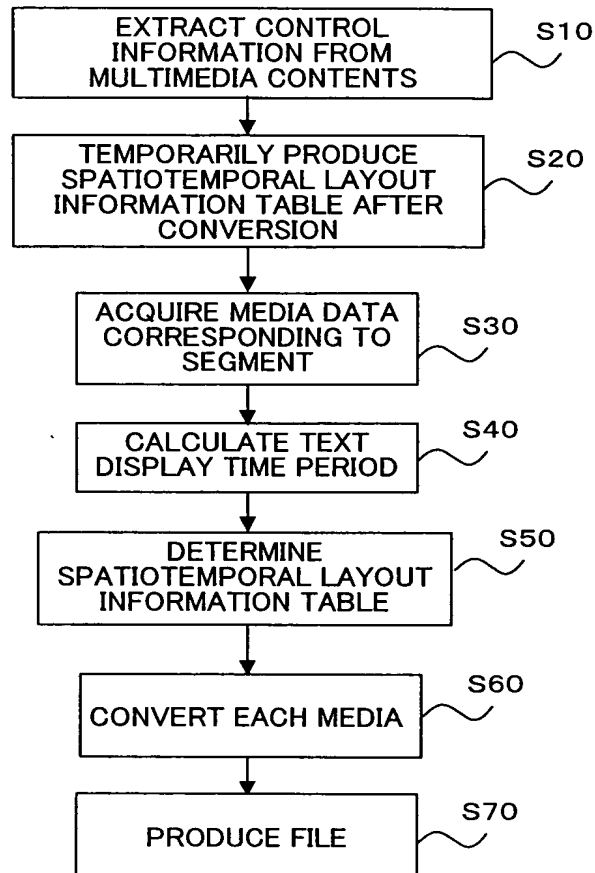


FIG. 7(A)

OUTPUT FILE FORMAT INFORMATION

ATTRIBUTE	VALUE
FILE FORMAT	3GPP TS.26.234 V.5.1.0

FIG. 7(B)

OUTPUT PRESENTATION FORM INFORMATION

ATTRIBUTE	VALUE
PRESENTATION FORM	[METHOD 1-1] [METHOD 1-2] [METHOD 1-3] [METHOD 2]

FIG. 7(C)

VIDEO RENDERING REGION TRANSITION ORDER INFORMATION

TRANSITION ORDER	RENDERING REGION ID
1	VRegionID1
2	VRegionID2
3	VRegionID3
4	VRegionID4
...	...

FIG. 7(F)

VIDEO DISPLAY FORM INFORMATION

ATTRIBUTE	VALUE
ENCODING METHOD	MPEG-4 Video SP@L0
FRAME RATE	MAXIMUM OF 15 fps
BIT RATE	MAXIMUM OF 64 kbps

FIG. 7(D)

TEXT RENDERING REGION TRANSITION ORDER INFORMATION

TRANSITION ORDER	RENDERING REGION ID
1	TRegionID1
2	TRegionID2
3	TRegionID3
4	TRegionID4
...	...

FIG. 7(G)

TEXT DISPLAY FORM INFORMATION

ATTRIBUTE	VALUE
DATA TYPE	3GPP TimedText
FONT NAME	Serif
FONT SIZE	9pt
CHARACTER SPACING	1pt
PITCH	FIXED
ORNAMENT METHOD	SCROLL INFORMATION

FIG. 7(H)

SCROLL INFORMATION

ATTRIBUTE	VALUE
DIRECTION	LEFT → RIGHT
SPEED	30pixel/sec

FIG. 7(E)

RENDERING REGION INFORMATION

ATTRIBUTE	VALUE
ID	VRegionID1
DISPLAY MEDIA ASSORTMENT	VIDEO
DISPLAY POSITION	(0,0)
DISPLAY REGION	176x144
MEDIA DISPLAY FORM	VIDEO DISPLAY FORM INFORMATION
ID	TRegionID1
DISPLAY MEDIA ASSORTMENT	TEXT
DISPLAY POSITION	(-12,144)
DISPLAY REGION	200x10
MEDIA DISPLAY FORM	TEXT DISPLAY FORM INFORMATION
ID	VRegionID2
...	...

FIG. 8(A)

VIDEO RENDERING REGION #1

segID	PLAYING START TIME	PLAYING TIME PERIOD	ENTITY	START TIME	END TIME
1	0s	10s	v1.mpg	10s	20s
2	10	10s	v2.mpg	0s	10s
3	20	20s	v3.mpg	20s	40s

FIG. 8(B)

VIDEO RENDERING REGION #n

segID	PLAYING START TIME	PLAYING TIME PERIOD	ENTITY	START TIME	END TIME
...

FIG. 8(C)

AUDIO RENDERING REGION #1

segID	PLAYING START TIME	PLAYING TIME PERIOD	ENTITY	START TIME	END TIME
1	0s	10s	a1.mpg	40s	50s
2	10	30s	a2.mpg	10s	40s

FIG. 8(D)

AUDIO RENDERING REGION #m

segID	PLAYING START TIME	PLAYING TIME PERIOD	ENTITY	START TIME	END TIME
...

FIG. 8(E)

TEXT RENDERING REGION #1

segID	PLAYING START TIME	PLAYING TIME PERIOD	ENTITY	START TIME	END TIME
1	0s	10s	t1.html	-	-
2	10	10s	t2.html	-	-
3	20	10s	t3.html	-	-
4	30	10s	t4.html	-	-

FIG. 8(F)

TEXT RENDERING REGION #k

segID	PLAYING START TIME	PLAYING TIME PERIOD	ENTITY	START TIME	END TIME
...

FIG. 9(A)

SPATIOTEMPORAL LAYOUT INFORMATION TABLE (METHOD 1)

RENDERING REGION ID	MEDIA ASSORTMENT	SEGMENT	PLAYING TIME	PLAYING TIME PERIOD	EFFECT INSTRUCTION INFORMATION
VRegionID1	VIDEO	Vseg#1...Vseg#s	0	TMP	REPEATED
TRegionID1	TEXT	Tseg#1...Tseg#t	0	DurOf (Tseg#1 . . . Tseg#t)	FREEZE
...

FIG. 9(B)

SEGMENT INFORMATION TABLE

SEGMENT ID	MEDIA ASSORTMENT	PLAYING TIME PERIOD	LOCATION OF DATA	START TIME	END TIME
Vseg#1	VIDEO	V#1_ed-v#1_st	URLv1	v#1_st	v#1_ed
...
Vseg#s	VIDEO	V#s_ed-v#s_st	URLvs	v#s_st	v#s_ed
Tseg#1	TEXT	DurOf(Tseg#1)	URLt1	—	—
...
Tseg#t	TEXT	DurOf(Tseg#t)	URLts	—	—
OTHERS	...	...	...	...	...

FIG. 10(A)

SPATIOTEMPORAL LAYOUT INFORMATION TABLE (METHOD 2)

RENDERING REGION ID	MEDIA ASSORTMENT	SEGMENT	PLAYING TIME	PLAYING TIME PERIOD
VRegionID1	VIDEO	Vseg#1 . . . Vseg#s	0	DurOf(Vseg#1 . . . Vseg#s)
TRegionID1	TEXT	Tseg#1 . . . Tseg#s	0	DurOf(Tseg#1 . . . Tseg#s)
OTHERS	...	...	...	...

FIG. 10(B)

SEGMENT INFORMATION TABLE

SEGMENT ID	MEDIA ASSORTMENT	PLAYING TIME PERIOD	EFFECT	LOCATION OF ENTITY	START TIME	END TIME
Vseg#1	VIDEO	Max(DurOf(Tseg#1) , (v#1_ed-v#1_st))	FREEZE	URLv1	v#1_st	v#1_ed
...
Vseg#s	VIDEO	Max(DurOf(Tseg#s) , (v#s_ed-v#s_st))	FREEZE	URLvs	v#s_st	v#s_ed
Tseg#1	TEXT	Max(DurOf(Tseg#1) , (v#1_ed-v#1_st))	N/A	URLt1	—	—
...
Tseg#s	TEXT	Max(DurOf(Tseg#s) , (v#s_ed-v#s_st))	N/A	URLts	—	—
OTHERS	...	...	...	...	...	...

FIG. 11

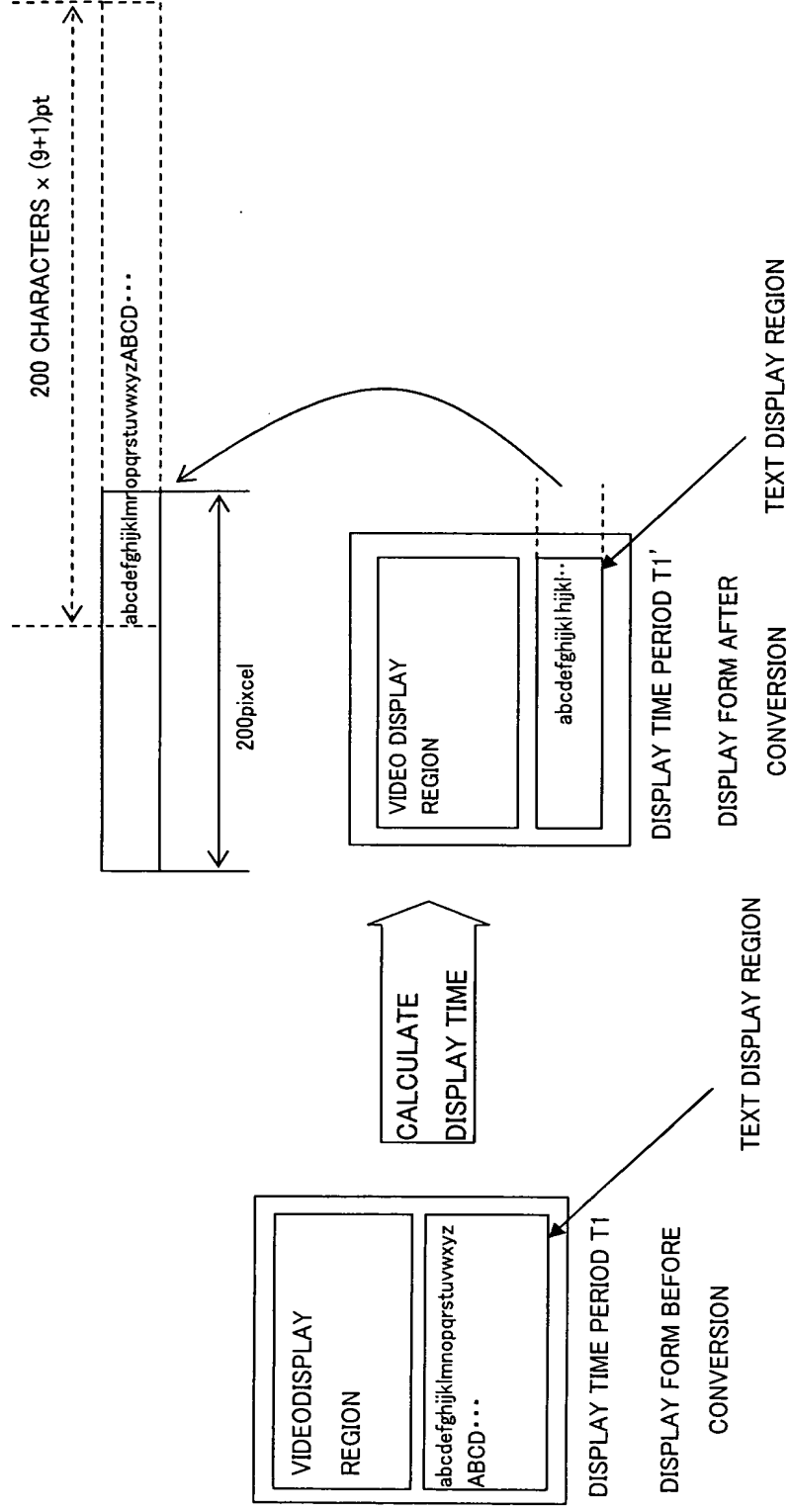


FIG. 12

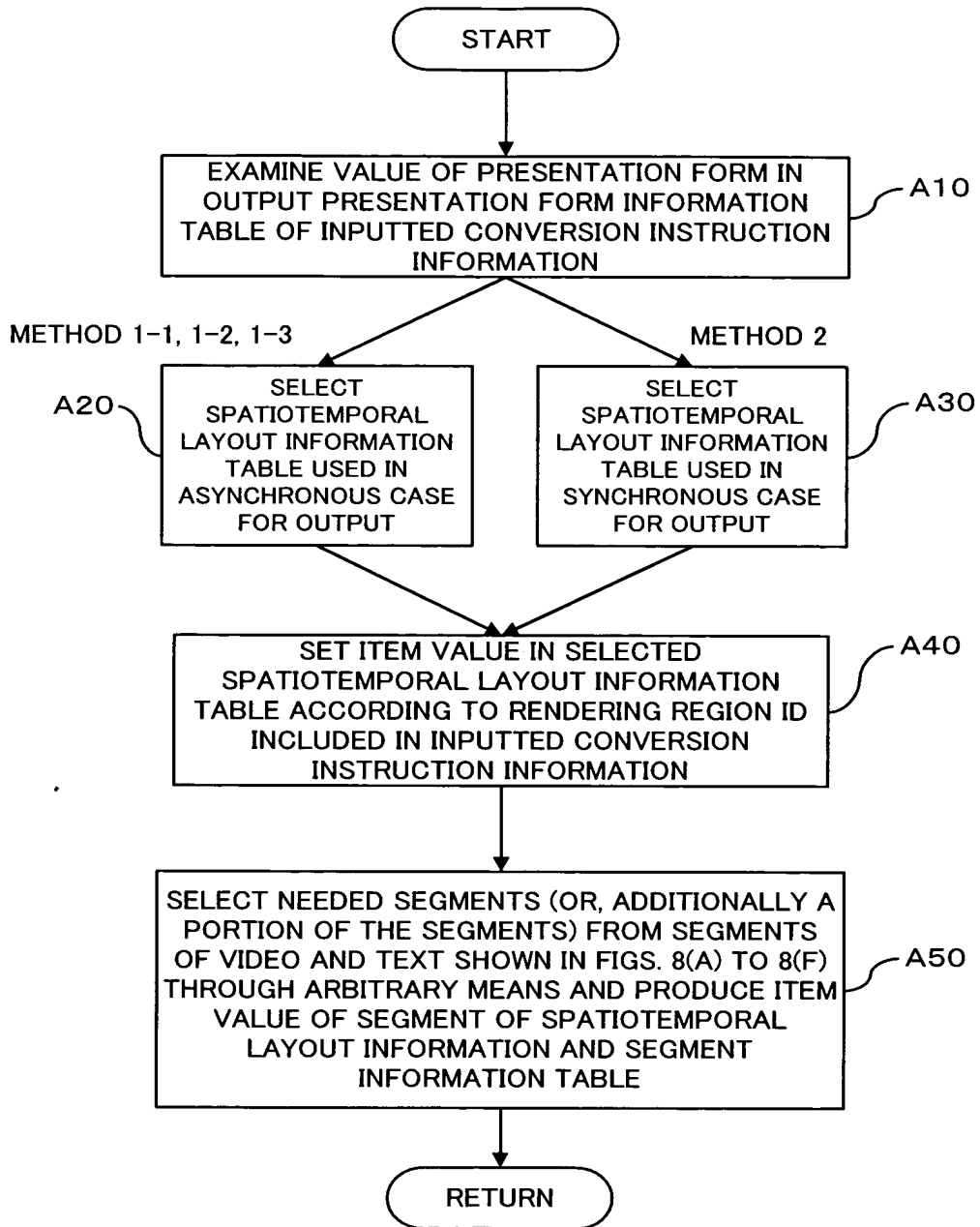


FIG. 13

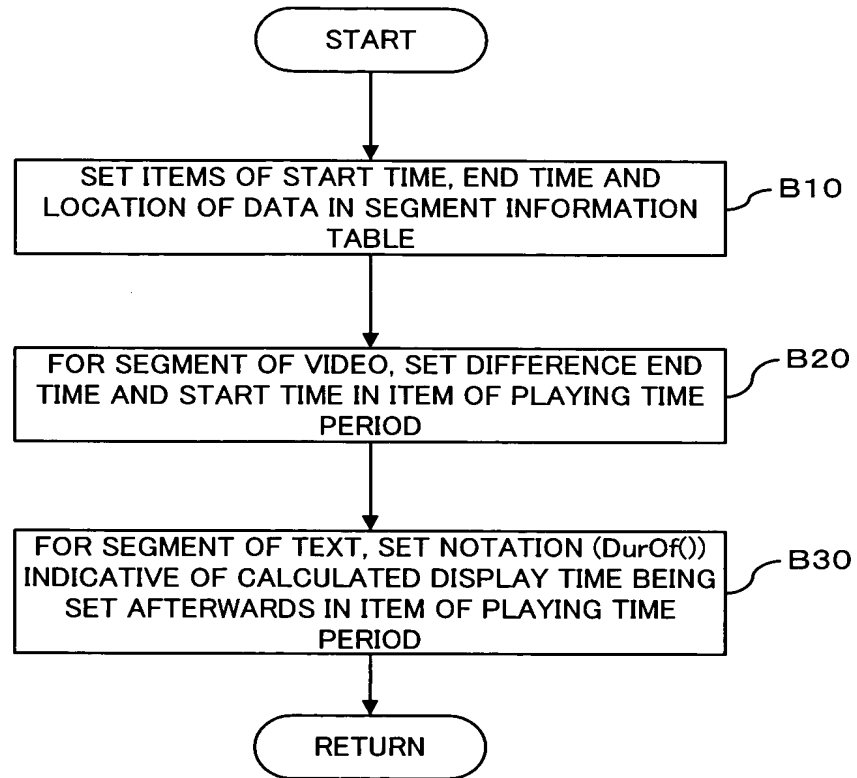


FIG. 14

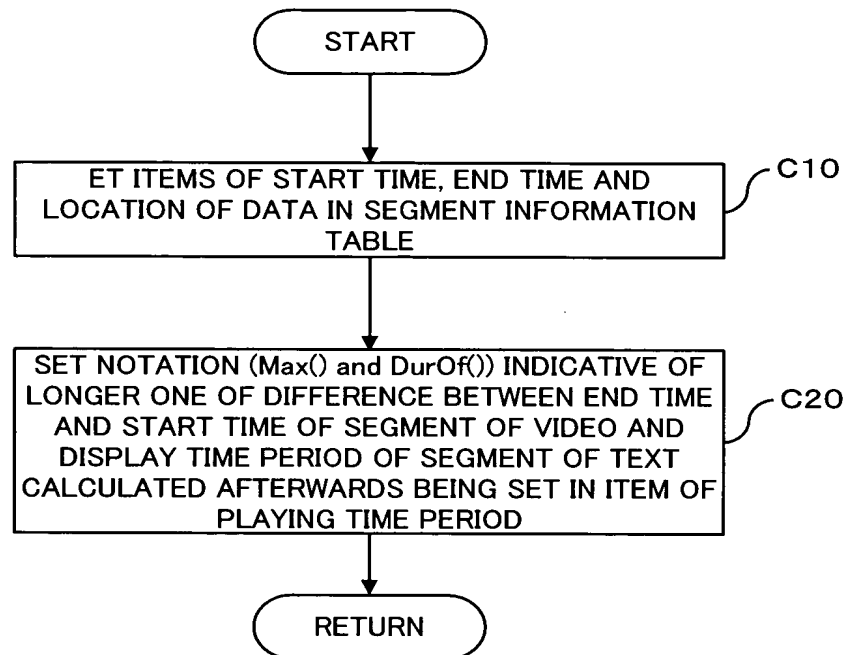


FIG. 15

